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Usability Evaluation of Tadarus: Student Perceptions

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Abstract

Today, higher education institutes face challenges when dealing with digital natives. As a result of the explosion of online learning materials and the rapid growth in information technologies and the Internet, there are increasing demands to adopt a learning management system (LMS) that complies with student aspirations by addressing their requirements. However, successful applications of LMSs are dependent on the extent to which they are adopted by users. One important aspect affecting adoption is usability, and specifically user friendly features. This study aims to reveal student perceptions toward the usability of Tadarus, a learning management system. The findings of this study could be utilized to establish a useful guide by which practitioners could improve the basic features of the system, as well as to help tutors to better implement online learning materials within the system.

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Keywords: Usability, Learning Management System (LMS), Satisfaction, E-learning.

1. Introduction

Today, the use of technology in education is not a choice; in fact, it is necessary for higher education institutes to adopt a learning management system (LMS) and suitable virtual learning environments in order to comply with the

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students which are digital natives, as this is a requirement for them. However, the successful application of LMSs are dependent on the extent to which they are adopted by the users. One important aspect which affects the adoption of these systems is usability, specifically user friendly features [1]. As a result, it is important to study and investigate the main usability factors that affect the different users' perspectives and usage of the system [2].

Although each student has their own perceptions regarding online learning materials and systems, there are a number of main features which could affect any system's quality. Firstly, feedback from the end-users should be gathered, regularly, in order to constantly improve the system. Secondly, researchers and practitioners should work together to understand the current situation, as well as problems and expectations. Finally, cooperation between researchers, designers and educational technologists could be blended in order to merge their expertise from their own fields [3]. Accordingly, this study aims to gain an understanding of common perceptions, by obtaining student perceptions toward the usability of Tadarus, as a LMS, this should identify the main weaknesses and allow for these to be addressed within a future improvement plan.

2. The learning environment (Tadarus)

Al-Imam Mohammad Ibn Saud Islamic University in Saudi Arabia has been authorized by the Ministry of Higher Education to offer distance education courses which can lead to Bachelor degrees. Admission is open to all Saudi and non-Saudi students and seven majors are available. The Deanship of E-learning and Distance Education at the University adopted Tadarus as the main LMS. Lectures are not only transmitted live via the Internet on a daily basis, but these transmissions are also recorded and uploaded onto Tadarus for students to watch at their convenience. Tadarus also facilitates student/lecturer communication through the use of emails, forums and virtual classrooms. Even though Tadarus was initially developed as an Arabic LMS which was one of the main reasons to adopt the system, it also supports the English language and it can support a third or fourth language, as required. The system itself incorporates all of the main features to manage the learning process, while also being compatible with international e-learning standards.

During the last decade, there were many usability studies in the area LMS and e-learning applications. Most of the studies were conducted in order to evaluate a certain e-learning system or to compare between the main usability features within different LMSs [4], while some studies aimed to find a general approach to measure and evaluate the usability within e-learning environments [5]. However, there is a lack of usability studies regarding the use of Tadarus as a LMS in higher education institutions. This study therefore aims to reveal student perceptions toward the usability of Tadarus depending on the main usability features which were defined in the previous studies [3, 5-7]. The results of which should provide guidance as to the modifications and improvements which can be made on the system.

3. Methodology

The main aim of this study was to reveal student perceptions toward the usability of Tadarus in order to guide the modifications and improvements to be made on the system. To achieve this goal, qualitative and quantitative research methodologies will be applied. This mixed approach is important as it enables the investigation of complex capabilities with regards to modern society and technology usage [8]. Consequently, this study will present an analysis of clearly defined measures as well as interpretations from the participants with regards to the usability of Tadarus.

Tadarus was considered in order to assess the usability, practicality and effectiveness of its pedagogy and overall design using a checklist. The checklist aimed to measure student perceptions toward the online learning materials within the system.

Consequently, the checklist for both pedagogy and overall design utilized a five-point Likert scale of possible responses, including: strongly agree 5, agree 4, neutral 3, disagree 2 and strongly disagree 1. In addition to these assigned values (ranging from five to one), a comment section was also given for most items in order to gather qualitative data regarding the user's perceptions of the materials. The checklist consisted of three subscales concerned with: overall design, pedagogical design of the materials and satisfaction of the users. The satisfaction subscale included six questions that were partly adapted from Hong and Holton [9]. An initial study was conducted with five experts, from software development, system usability and distance education, in an attempt to identify the main items

that were deemed to contribute to the validity of the research outcomes [10]. Table 1 summarizes the identified items for each subscale.

Table 1. Subscale items.

	Overall design subscale items
Q1	I found Tadarus a user friendly system.
Q2	The instructions and user manual for Tadarus are clear and easy to follow.
Q3	It is easy to navigate through the content.
Q4	Loading time of the content is appropriate.
Q5	I had some technical problems while using Tadarus.
Q6	I like studying on always accessible and time-flexible web-based content.
	Pedagogical design subscale items
P1	Feedback from other students was helpful to my comprehension.
P2	Feedback I wrote was helpful to my comprehension..
P3	Feedback from the tutor was helpful to my comprehension.
P4	Exercises and short quizzes were helpful to my comprehension.
P5	I enjoyed interacting with the community of learners.
P6	Virtual classrooms tools are easy to learn and use.
P7	Using chatting feature within the virtual classrooms was helpful to my comprehension.
P8	Instant feedback mechanism from exercises and short quizzes helped me to learn from my mistakes.
P9	Learning resources (content) were helpful to me.
P10	Recorded lectures (audios and videos) were helpful to me.
P11	The combination of online materials and collaboration/exercise tools motivated me to study.
P12	I found the multiple choice questions more helpful to my comprehension.
	Satisfaction subscale items
S1	I found Tadarus a user friendly system.
S2	The instructions and user manual for Tadarus are clear and easy to follow.
S3	It is easy to navigate through the content.
S4	Loading time of the content is appropriate.
S5	I had some technical problems while using Tadarus.
S6	I found the contacting methods with the tutors, via Tadarus, very helpful and effective.

4. Results

During the first semester of 2014, all of the students registered on the preparatory semester for the programs offered by the E-learning and Distance Education Deanship were asked to participate in a web-based questionnaire which was distributed via Tadarus. The first part of the questionnaire identified the students' demographic information, background and characteristics, while the second part focused on their perceptions toward system usability for the identified subscales.

A total of 3541 students completed the questionnaire, of these 1471 were male (42%) and 2070 were female (58%). Noteworthy, only 52 (1%) of the participants described their computer skills as weak. A frequency analysis was conducted for each variable to check for any major mistakes or missing values. The results of which showed that the data was valid and ready to be analyzed. A reliability test was then carried out to check the level to which the research results would be the same if the investigation was to be repeated with a different sample, or at a later date. The most accepted test of inter-item consistency reliability is the Cronbach's coefficient alpha test [11]. The closer the result is to

1.0 the better the reliability is. In general, the minimum acceptable value of Cronbach's alpha is 0.70 [12-14], but this can be reduced when considering exploratory research [15]. The Cronbach's alpha values for the recognized motives provided acceptable reliability levels, as shown in Table 2.

Table 2. Reliability statistics.

	Cronbach's alpha	Cronbach's alpha, based on standardized items	No. of items
Overall design subscale	.687	.720	6
Pedagogical design subscale	.909	.910	12
Satisfaction subscale	.883	.883	6

Table 3 summarizes the descriptive statistics (number, mean and standard deviation) for the overall design subscales. The results show that users mainly preferred to study using always accessible and time-flexible web-based content (mean = 4.15). This was followed by the choices "I found Tadarus a user friendly system" (mean = 4.08) and "It is easy to navigate through the system" (mean = 3.90) which indicated that users found the Tadarus system, in general, user friendly. The item "I had some technical problems while using Tadarus" scored the lowest (mean = 3.43).

Table 3. Descriptive statistics of overall design subscale scores.

	Mean	Std. deviation	N
O1	4.08	.839	3541
O2	3.88	.941	3541
O3	3.90	.997	3541
O4	3.55	1.104	3541
O5	3.43	1.199	3541
O6	4.15	1.005	3541

N: Number of students who attended the study

M: Mean scores

SD: Standard deviation

Table 4 summarizes the descriptive statistics with regard to the pedagogical design of the materials. The results for all items scored a mean of above 3.6 which is indicative that all of the users were satisfied with the learning environment within the system. Furthermore, they mainly stated that the multiple choice question styles were helpful to their comprehension (mean = 4.08), and that the instant feedback mechanism of exercises and short quizzes, learning resources (content) and recorded lectures (audios and videos) were helpful (mean = 4.02).

Table 4. Descriptive statistics results of pedagogical design subscale scores.

	Mean	Std. deviation	N
P1	3.92	.933	3541
P2	3.82	.912	3541
P3	3.81	.960	3541
P4	3.89	1.008	3541
P5	3.88	.979	3541
P6	3.80	.957	3541
P7	3.66	1.068	3541
P8	4.02	.922	3541
P9	4.02	.864	3541

P10	4.02	1.020	3541
P11	3.96	.894	3541
P12	4.08	.887	3541

N: Number of students who attended the study

M: Mean scores

SD: Standard Deviation

Table 5 shows the students' perceived satisfaction levels with regards to using Tadarus; specifically, these results acknowledge that most of the students found that studying through the system increased their understanding (mean = 4.2446). Moreover, the majority of the students found that studying through the system facilitated contact with teachers and peer students (mean = 3.9280 and 3.9263, respectively). In fact, the students demonstrated positive perspectives towards all of the satisfaction subscale items, and insignificant differences in the mean scores were noted.

Table 5. Descriptive statistics results of satisfaction subscale scores

	Mean	Std. deviation	N
S1	4.2446	.84442	3541
S2	3.9280	1.00009	3541
S3	3.9263	.96839	3541
S4	3.9238	.97184	3541
S5	3.6631	1.00971	3541
S6	3.9130	.93235	3541

N: Number of students who attended the study

M: Mean scores

SD: Standard Deviation

5. Discussion

The findings presented above indicate that the users had positive thoughts and perceptions, in general, toward using Tadarus. However, an in depth review of the results identified some suggestions for improvements. For the "overall design" subscale, it is possible to suggest that the technicians should consider loading time issues, as the item "Loading time of the content is appropriate" scored 3.55; this value could be considered low when compared against the other items. While in the "pedagogical design" subscale, it was identified that more efforts should be spent in order to obtain the most benefits from the chatting feature within the virtual classrooms sessions. Moreover the discussion forums could be exploited more and in a better way to motivate student collaborations and discussions. As the items: "Using chatting feature within the virtual classrooms was helpful to my comprehension" and "My overall experience in using discussion forums within Tadarus were effective" had the lowest scores in their group with 3.66 for each item.

The results from this research could be useful to the improvement of the main functions and features of Tadarus, and could therefore enhance the system's usability from two sides: user friendly features (easy to use) and efficiency (helping learners to collaboratively learn and practice) within the learning environment.

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